

GRAPHICAL INTERFACE FOR COMMUNICATION BETWEEN STUDENTS

Sergiu Jecan¹

Țolea Eniko²

Claudiu Adrian Teșca³

Abstract

In carrying out this work we had as objective the presentation of the basics elements of collaboration and how students can benefit from an application that encourages them to work together. In this paper we will propose a simple communication interface for students. This application was made using popular technologies like Microsoft Visual Studio 2008 environment and Microsoft SQL Server 2000. We will explain why we choose these solutions, and how they helped us reach our goal.

Introduction

With current technology, the computer became the device that makes it easy for all of us to stay connected. The computer provides us the ability to operate with different concepts and benefit from applications that helps us in any field. Information management in today's competitive environment has led to the development of software products that use appropriate technologies to maximize profits with minimum investment. Using new technology provide clear benefits, comparative with using traditional software products. Economic sphere is a domain where the computer demonstrates its real value. But social relationships are stronger since the appearance of social network applications. By hosting and managing various applications computers demonstrate how useful they can turn out to be for everyone who uses them. In fact, nowadays, computer, or mobile devices, became an important part of our life.

The application presented in this paper, aims, to provide documents necessary to carry out some projects needed by students. The whole community can communicate using this application where members can share their ideas. By achieving this we aimed to include a more affordable interface for the user. The application has some advantages in that it is very well structured and user friendly.

We preferred simplicity as we consider users very demanding in terms of imposed rules. Collaboration has to encourage creativity. This is why we propose a minimal set of rules for our application, as it is well known that constraints are the contrast of creativity. Even so, the application must assure some coordination and surveillance mechanisms as malicious users are everywhere on the Internet.

¹ PhD Lecturer at Babes-Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, Theodor Mihaly, nr. 58-60, 400591, Cluj-Napoca, Romania. sergiu.jecan@econ.ubbcluj.ro

² PhD Student at Babes-Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, Theodor Mihaly, nr. 58-60, 400591, Cluj-Napoca, Romania. eniko.tolea@econ.ubbcluj.ro

³ Student at Babes-Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, Theodor Mihaly, nr. 58-60, 400591, Cluj-Napoca, Romania. claudel_dinamo@yahoo.com

Related works

At a national level, one of the most popular portals for students which provide facilities for advanced research by category is www.regielive.ro. It includes all the information a student can be interested in: university courses, jobs for students, also offers the opportunity to engage discussions on forums. The only disadvantage is that visitors do not provide internationalization [Connolly, 2000] and thus, the portal is limited to Romanian students. Internationally, the number of portals for PhD students is growing [Tatnall, 2005]. An example of portal networks of high recognition is EURONF (http://euronf.enst.fr/en_accueil.html) which responds to the needs of the students willing to choose for a PhD program in French universities. Finally, we mention the Dutch national job portal for students: http://www.academictransfer.com/?set_language=nl. This portal is available in both English and Dutch and provides the possibility for advanced search by multiple criteria such as information on employers (which are usually universities), and an information guide on the necessary steps to obtain a work visa in Netherlands [Jecan, Bența, Podean, 2011].

Another example we have guided through is the presentation page of the research units in the University of Luxembourg (http://www.en.uni.lu/research/fstc/computer_science_and_communications_research_unit) which requires the following format: name, mission, structures adjacent to research with links to: objectives, research teams etc. On the right, the presentation pages always contain the pictures of the Director of the Centre (with access to the presentation page) and the Secretary of the Centre (with access to her or his contact page) [Jecan, Bența, Podean, 2011].

Description of the application

Our application aims to provide the user a website that provides him the functionalities needed to stay permanently connected with its colleagues. The website sets up a social environment, an information exchange tool, a sharing information mechanism, forums, and other tools depending on the users' needs. Thus, we proposed a configurable, dynamic application that allows users to select only the needed functionalities, and integrate them in a system that acts as a power tool of collaboration. Thus, our application offers the following standard modules:

- Account creation – with its sub-modules: login, logout;
- Post messages - communication between users module;
- Picture viewer; upload and download images;
- Files viewer - upload and download files of different types, Word, Excel, Power Point presentations, archives etc.;
- View members;
- Administration module - where the administrator can define the elements of the site

Applications' use cases

We proposed two user roles to categorize users of our website, namely: visitor and administrator.

The visitors' use cases are:

- A user who has no account or is not logged into the website, has rights, only, to view the site rules, messages, images, files, and members;
- A user can create an account accessing the CREATE YOUR ACCOUNT module, where he has to enter a username, a password, and associate a picture of his account;
- Once created the account, the user is automatically logged in the application, where, in addition to viewing information, he can also access the menu panel including the following links: HOME, MESSAGES, FILES, PHOTOS, MEMBERS;
- From the FILES option, by clicking the Upload File, he can access the page where he can upload a file and assign a specific domain name for it. After upload, the user is redirected to the View Files where he can see where his document was inserted;
- From the PICTURES menu, by clicking on the Pictures Upload option a user can upload pictures. After completing this he is redirected to the upload page to view its pictures. By clicking on a picture the user can see in a new window the original size of its picture, or other pictures and can save it on his computer;

The administrators' use cases are:

- All the use cases described for visitors suits the administrator as well;
- The setup option where he can define fields for files and where he can view the application code, to be able to debug if needed;
- Additional, admin users have the right to delete inappropriate messages posted on the forums.



Fig.1. Use case

Conceptualization

Before starting the actual development of the website we have set up an architecture that takes into account the project specifications and helped us follow an appropriate

implementation plan. Any wrong decision taken when creating the architecture of the application could have negative implications in terms of efficiency, functionalities, and maintainability.

We propose an application that can be modularized into three major levels which communicate between them, each one having its specific roles. This approach is known as the "Three tier level" model.

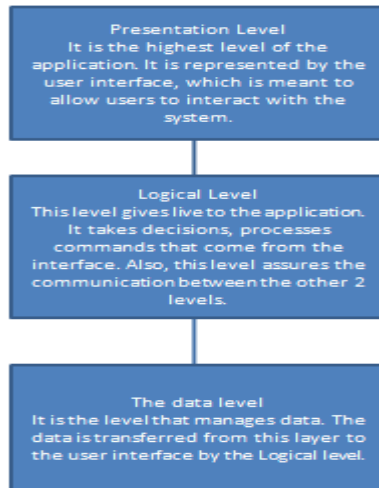


Fig.2. the Three Tire Architecture

The application specifications allow us to decide which data should be stored in the data level and displayed to the user for manipulation. Thus, we have set up a database described in Fig.3. To store pictures, we decided that the best way we can deal with this task is to store them on the servers' hard drive, otherwise we had to create a mechanism that stores them bit with bit in the database.

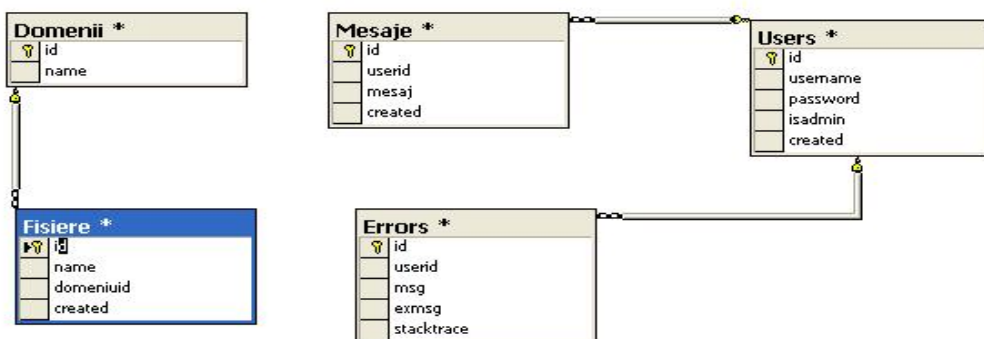


Fig.3. the Applications' database

A class diagram is a visual representation of an application which identifies the applications' classes and the relationships between them. Classes define the attributes of unstable elements and operations that each element performs or has to support. One way

to deduct the applications' classes is to identify them from the use case diagrams. This means that a programmer has to study carefully the usual and unusual scenarios and identify which parts of the use-case diagram can represent classes. Class diagrams are part of the static diagrams category and describe the internal structure of the system. These diagrams are used mainly to identify the attributes, operations, and relationships between classes. Their construction takes place during the elaboration of the system, which is the most important phase of conceptualization.

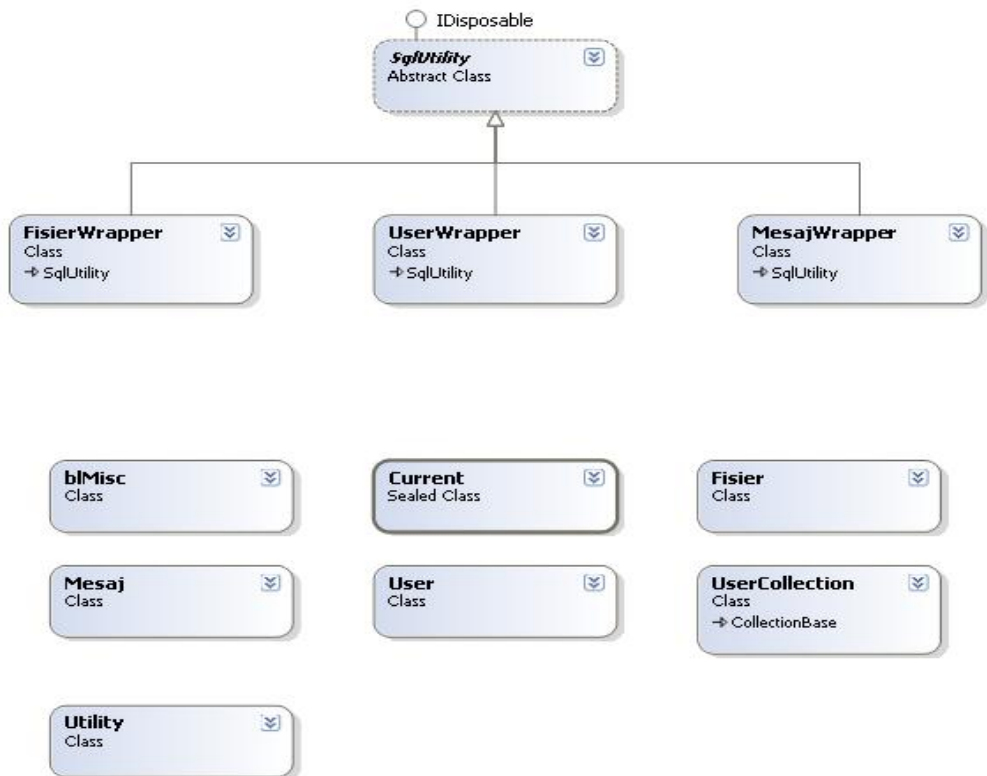


Fig.4. the Class Diagram

Activity diagram is represented by a logical scheme showing control flows between activities. It is used to model dynamic aspects of the system and requires a process modeling step. Using it, one can model the flow of an object that passes from one state to another.

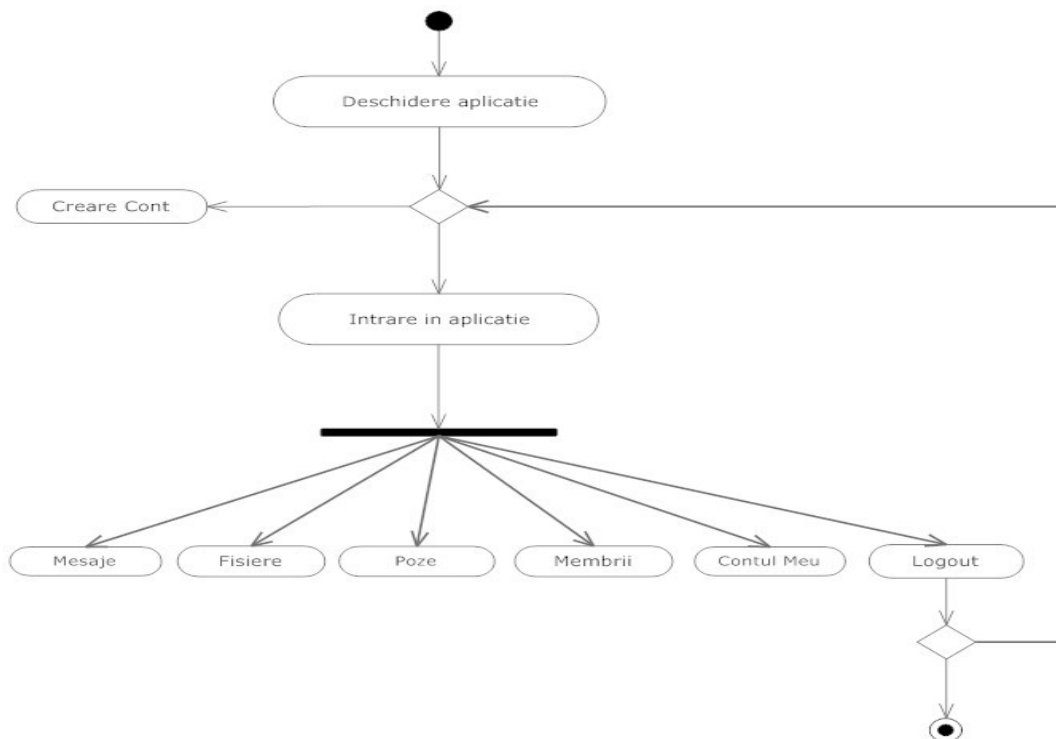


Fig.5. the Activity diagram

Conclusion

This paper presents the conception, design, and implementation of an application that proposes a graphical interface for communication between students. In preparing this article we had as objective to demonstrate that the use of .Net Framework technologies can provide a very attractive graphical interface. This application was made to serve students for teaching purposes, but not only them but also other people interested in those areas listed in the paper.

To run this application one requires only a browser and a permanent connection to the internet. There is no need for modern hardware and software.

The application aims to provide a website that meets certain requirements (simplicity, easy to use interface, quick response, no errors).

Our website sets up a social environment that allows sharing information; provides a powerful forum and is configurable depending on specific needs.

Our application is open to further development and is easily adaptable to other specific areas.

Acknowledgment

This paper contains results of the research efforts supported by the following grants financed by the Romanian Research Authority through CNCSIS: the research grant PNII 12-119.2/01.10.2008 **INVITE** developed within the author's department

References

- Connolly, C.G. (2000), From Web Site to Portal, în EDUCAUSE Quarterly, 3(2), 2000
- Constantin Avornicului & Mihai Avornicului (2011), Managementul și proiectarea sistemelor informatice de gestiune, Cluj-Napoca, 2011
- Jacobson, I., Christerson, M., Jonsson, P. and Overgaard, G. (1992), Object-Oriented Software Engineering: A Use Case Driven Approach, in: Wokingham, UK: Addison-Wesley.
- Jecan S., (2006), User authentication in network applications, International Workshop – Business information systems “E-Everything” in the Knowledge Society, Timisoara, pp. 183-188
- Jecan S., Benta D., Podean M. (2011), Collaborative portal for PhD students, Proceedings of the 7th International Conference on Management of Technological Changes, Alexandroupolis, Greece, 1-3 sept 2011
- Lucia Rusu, Robert Buchmman (2004), Dezvoltarea aplicatiilor Web, Ed. Risoprint 2004, Cluj-Napoca
- Malaga, R.A. (2007), The value of search engine optimization – An action research project at a new e-commerce site, Electronic Commerce în Organizations, 5, 3, (2007), pp. 68-82.
- Oancea Mirela (2005), Sisteme informatice de sistare a deciziei financiare, Ed. ASE PrintHouse, Bucuresti, 2005
- Oprea, D. (2002), Protecția și securitatea sistemelor informaționale, Ed. Polirom, Iași, 2002.
- Silaghi Gheorghe (2009), Medii de dezvoltare, Ed. Risoprint 2009, Cluj-Napoca
- Sitar-Tăut D., B. (2005), “ An Overview on Federated Database Systems”, The Impact of European Integration on the National Economy, Ed. Risoprint, Cluj-Napoca.
- Sitar-Taut Dan-Andrei (2005), Baze de date distribuite, Ed. Risoprint, 2005, Cluj-Napoca
- Tatnall Arthur (2005), Web portals: the new gateways to Internet information and services, Published în the United States of America by Idea Group Publishing
- <http://users.cs.tuiasi.ro/~igavrilasdm2011/109sd.pdf>
- *** Microsoft - Introducere in Net.Framework [Online]